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23117 7590 05/30/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
GREECE, JAMES R				
ART UNIT		PAPER NUMBER		
2873				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/535,227

Applicant(s)

ELVESJO ET AL

Examiner

JAMES R. GREECE

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 5 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date 7/25/2006 and 5/17/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Applicant cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Status of the Application

Claims 1-20 are pending in this application

If the applicant is aware of any prior art or any other co-pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.56 to disclose the same.

Drawings

There are no objections to applicant's drawings at this time.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6-7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hutchinson et al (USPAT 6,152,563).

In regard to claims 1-3, Hutchinson et al teach the following as claimed:

One or more light sources for emitting light in directions toward the head of a user, (see at least col. 5, lines 32-35 and col. 4, lines 48-67) a detector for receiving light from the head of a user and to repeatedly capture pictures thereof, (see at least col. 4, lines 42-45) and an evaluation unit connected to the detector for determining the position and/or gaze direction of an

eye, (for details see at least col. 3, lines 7-12 and col. 5, lines 14-31) characterized in that the evaluation unit is arranged to determine, in a picture captured by the detector, an area in which an image of an eye or images of eyes is/are located, (see at least col. 5, lines 5-31) and after determining the area, to control the detector to forward to the evaluation unit information about successive or following pictures that only corresponds to the determined area of the image captured by the detector (see at least col. 5, lines 5-31).

The detector is arranged to only read out information from that portion of the detector surface that corresponds to the determined area and thereby the data that are to be then forwarded to the evaluation unit (see at least col. 5, lines 5-31).

The case where the evaluation unit cannot from the forwarded information execute the determination, the evaluation unit is arranged to control the detector to forward for the next picture information about a larger portion of the detector around the previously determined area (for details see col. 3, lines 65-67 and col. 4, lines 1-15)

In regard to claims 6-7, Hutchinson et al teach the following as claimed:

That at least two light sources are provided and are placed at a distance from each other for emitting at least two light beams to be reflected from the cornea of an eye of a user, (see at least col. 5, lines 32-35 and col. 4, lines 48-67) and that the evaluation unit is arranged to use in a captured image the positions of the images of the reflections of the light sources to determine the location of the eye in relation to the detector (see at least col. 3, lines 65-67 and col. 4, lines 1-15)

The evaluation unit is arranged to determine the distance between images of the reflections of the light sources in a captured picture to determine therefrom the distance of the eye from the detector (see at least col. 3, lines 65-67 and col. 4, lines 1-15)

In regard to claims 10, Hutchinson et al teach the following as claimed:

One of the light sources is arranged to emit light in a light beam coaxial with the optical axis of the detector (See at least col. 5, lines 32-35 and col. 4, lines 48-67 and col. 3, lines 51-64)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 8-9, 11, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchinson et al (USPAT 6,152,563) as applied to claim 1 above, and further in view of Lemelson et al (USPAT 6,421,064).

In regard to claim 8, Hutchinson et al disclose the following as claimed:

Characterized in that at least three light sources are provided in a definite pattern (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35)

In regard to claim 8, Hutchinson et al does not explicitly teach the following as claimed:

The evaluation unit arranged to determine the positions of images of the reflections of the light sources and to use all the determined positions to determine the location of the eye in relation to the detector.

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include an evaluation unit arranged to determine the positions of images of the reflections of the light sources and to use all the determined positions to determine the location of the eye in relation to the detector as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

In regard to claim 9, Hutchinson et al disclose the following as claimed:

Characterized in that the light sources are divided in two groups, a first group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the gaze direction of the eye (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35).

In regard to claim 9, Hutchinson et al does not explicitly teach the following as claimed:

A second group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the distance of the eye from the detector, the

control unit arranged to switch either one of or both of these two groups on in capturing each picture.

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include a second group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the distance of the eye from the detector, the control unit arranged to switch either one of or both of these two groups on in capturing each picture as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

In regard to claim 11, Hutchinson et al disclose the following as claimed:

characterized in that the light sources are divided in two groups, a first group of which is arranged to emit light that causes a bright eye effect and hence is suited to determine, from images captured with illumination from only this group, the gaze direction of the eye, (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35).

In regard to claim 11, Hutchinson et al do not explicitly teach the following as claimed:

and a second group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the distance of the eye from the detector, the control unit being arranged to activate either one or both these groups in capturing each picture.

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include a second group of which is arranged to emit light suited to determine, from pictures captured with illumination from only

this group, the distance of the eye from the detector, the control unit being arranged to activate either one or both these groups in capturing each picture as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

In regard to claim 14, Hutchinson et al disclose the following as claimed:

At least two light sources for emitting light in directions towards the head of a user, (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35) a detector for receiving light from the head of a user and for repeatedly capturing pictures thereof, (see at least col. 4, lines 42-45) and an evaluation unit connected to the detector, (for details see at least col. 3, lines 7-12 and col. 5, lines 14-31) characterized in that at least two of the light sources are placed at a distance from each other for emitting at least two light beams to be reflected from an eye of a user, (see at least col. 5, lines 32-35 and col. 4, lines 48-67)

In regard to claim 14, Hutchinson et al do not explicitly teach the following as claimed:

The evaluation unit is arranged to use in the captured image the positions of the images of the reflections of the light sources to determine the location of the eye in relation to the detector.

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include the evaluation unit is arranged to use in the captured image the positions of the images of the reflections of the light sources to determine the location of the eye in relation to the detector as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

In regard to claim 15, Hutchinson et al do not explicitly teach the following as claimed:

The evaluation unit is arranged to determine the distance between images of the reflections of the light sources in the captured image to determine therefrom the distance of the eye from the detector

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include the evaluation unit is arranged to determine the distance between images of the reflections of the light sources in the captured image to determine therefrom the distance of the eye from the detector as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

In regard to claim 16, Hutchinson et al further disclose the following as claimed:

At least three light sources arranged in a definite pattern, the evaluation unit arranged to determine the positions of images of the reflections of the light sources and to use all the determined positions to determine the location of the eye in relation to the detector (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35)

In regard to claim 17, Hutchinson et al disclose the following as claimed:

Characterized in that the light sources are divided in two groups, a first group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the gaze direction of the eye (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35).

In regard to claim 17, Hutchinson et al do not explicitly teach the following as claimed:

a second group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the distance of the eye from the detector, the control unit arranged to activate either one of or both of these group in capturing each picture.

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include a second group of which is arranged to emit light suited to determine, from pictures captured with illumination from only this group, the distance of the eye from the detector, the control unit arranged to activate either one of or both of these group in capturing each picture as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

In regard to claim 18, Hutchinson et al further disclose the following as claimed:

Characterized by at least three light sources, at least two of which are placed at an edge, in particular the upper or lower edge, (for details see at least col. 3, 50-64) of a monitor or display and one of which is placed at an opposite edge of the monitor or display, (for details see at least figure 1) the evaluation unit arranged to determine the positions of images of the reflections of the light sources and to use the determined positions to determine the location of the eye in relation to the detector (for details see at least col. 5, lines 5-31).

In regard to claim 19, Hutchinson et al further disclose the following as claimed:

One of the light sources is arranged to emit light in a light beam coaxial with the optical axis of the detector (for details see at least figure 1)

In regard to claim 20, Hutchinson et al disclose the following as claimed:

The light sources are divided in two groups, a first group of which is arranged to emit light that causes a bright eye effect and hence is suited to determine, from pictures captured with illumination from only this group, the gaze direction of the eye, (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35).

In regard to claim 20, Hutchinson et al do not explicitly teach the following as claimed:

A second group of which is arranged to emit light suited to determine, from images captured with illumination from only this group, the distance of the eye from the detector, the control unit arranged to activate either one of or both of these groups in capturing each picture.

However Lemelson et al teach this limitation in col. 11, lines 37-55.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson to include a second group of which is arranged to emit light suited to determine, from images captured with illumination from only this group, the distance of the eye from the detector, the control unit arranged to activate either one of or both of these groups in capturing each picture as taught by Lemelson for the predictable result of providing an eye tracking device with a wide variety of applications.

6. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchinson et al (USPAT 6,152,563).

In regard to claim 12, Hutchinson et al disclose the following as claimed:

One or more light sources for emitting light in directions towards the head of a user, (See at least col. 3, lines 51-64; col. 4, lines 48-67; col. 5, lines 32-35) a detector for receiving light from the head of a user and to repeatedly capture pictures thereof, (see at least col. 4, lines 42-

45) and an evaluation unit connected to the detector to determine the position and/or gaze direction of an eye, characterized in that the evaluation unit is arranged (see at least col. 5, lines 5-31).

In regard to claims 4 and 12, Hutchinson et al do not explicitly disclose the following as claimed:

To decide in a current picture captured by the detector whether the picture contains images of the two eyes of a user, and in the case where the evaluation unit decides that an image of only one eye exists in the current picture, to determine that this eye is the same eye that has an image within a previously captured picture, provided that the image of the eye has a position in the current picture that is sufficiently close to the position of the image of the eye in the previously captured picture

However the examiner takes official notice to the fact that eye gaze detectors are well known to be combined in the art with right/left/both eye detectors for the predictable result of providing an accurate method of gauging the operator's attention. It would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the device of Hutchinson et al to include a right/left/both eye detector for the predictable result of accurately assessing the operator's attention. A reference supporting this notice is Ueno et al (USPAT 5,218,387) or Ueno et al (USPAT 5,293,427).

Claim Objections

7. Claims 5 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art taken singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper.

In regard to dependent claims 5 and 13, the prior art fail to anticipate or fairly suggest an eye detection installation combining all of the particular and explicitly described limitations as recited therein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES R. GREECE whose telephone number is (571)272-3711. The examiner can normally be reached on M-Th 7:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2873

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James R Greece

Art Unit 2873

/JRG/

5/19/2008

/Joseph Martinez/

Patent Examiner, Art Unit 2873